



Manning Colliery Monthly Website Report – September 2024

Site:	Manning Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Report – September 2024
Report Date:	10 th October 2024
Distribution:	Delta Coal website

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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of September 2024.

Introduction

Great Southern Energy Pty Ltd (trading as Delta Coal) operates Manning Colliery, an underground coal mine at the southern end of Lake Macquarie.

Manning Colliery operates under the following regulatory instruments:

- Section 66(6) of the *Protection of the Environmental Operations Act 1997*, to make monitoring data related to an Environment Protection Licence (EPL) publicly available;
- Condition 10 & 13, Schedule 5, of Project Approval 06_0311 (as modified) to provide details of monitoring results and environmental performance;
- An Environment Protection Licence (EPL 191) issued under the *Protection of the Environment Operations Act 1997*; and
- A Water Access Licence (WAL40461), Aquifer (Sydney Basin – North Coast Groundwater Source) for 450-unit shares (megalitres).

Details of the Manning Colliery EPL 191 are provided below.

Manning Colliery Information	
Premises name	Manning Colliery
Address	Ruttleys Road, Doyalson, NSW, 2262
Licensee	Great Southern Energy Pty Ltd
EPL #	191
EPL location	EPL 0191 - 16 June 2023

The overall purpose of this monthly report is to keep stakeholders informed of the environmental monitoring results at Manning Colliery and maintain a transparent and accountable reporting system.

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Scope

This report presents the results from the various environmental monitoring programs undertaken for Manning Colliery. Results are presented monthly with annual data, averages and trends in data also shown where relevant.

Where applicable, the results of the monitoring programs are compared with the relevant criteria (from the EPL or Project Approval) to assess compliance.

Monitoring results presented include:

- Water – quality;
- Water – volume;
- Air Quality – Depositional Dust
- Air Quality – PM₁₀
- Air Quality – PM_{2.5}; and
- Meteorological data.

Definitions

g/m²/month – grams per square metre per month;

kL – kilolitre;

ML – megalitre;

mg/L – milligrams per litre;

TSS – total suspended solids;

µg/L – micrograms per litre; and

µS/cm – microSiemens per centimetre.

References

Project Approval MP06_0311 (as modified)

Environment Protection Licence 191 (Licence version date: 16 June 2023)

ALS - Dust Deposition Report **September 2024**

ALS – MC Water Analysis Reports **September 2024**

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Monitoring Results

Water – Quality

Weekly water quality results for discharge point LDP001 are presented below.

September 2024				
EPL	191			
Licensee	Great Southern Energy Pty Ltd			
Premises	Manning Colliery			
Location	LDP001 (EPA ID # 1)			
Sample Frequency	Weekly			
pH limit	6.5 - 8.5			
TSS limit (mg/L)	50			
Oil and grease limit (mg/L)	10			
Water Quality Results				
Date	pH	TSS (mg/L)	Oil and grease (mg/L)	Electrical Conductivity (µS/cm)
3/09/2024	8.12	8	<5	27200
11/09/2024	7.87	8	<5	20100
16/09/2024	7.85	<5	<5	19400
23/09/2024	8.15	9	<5	19100
Average	8	6.88	<5	21450

There were no exceedances of water quality criteria in September 2024 at Manning Colliery.

Monthly water quality results, primarily metals and metalloids, at LDP001 are presented below.

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Sub-Matrix: WATER (Matrix: WATER)				Sample ID	LDP001
				Sampling date / time	11-Sep-2024 07:45
Compound	CAS Number	LOR	Unit	EN2410738-001	
					Result
ED040F: Dissolved Major Anions					
Sulfur as S	63705-05-5	1	mg/L	120	
Silicon as SiO2	14464-46-1	0.1	mg/L	9.8	
ED093T: Total Major Cations					
Calcium	7440-70-2	1	mg/L	217	
Magnesium	7439-95-4	1	mg/L	264	
Potassium	7440-09-7	1	mg/L	34	
EG020F: Dissolved Metals by ICP-MS					
Aluminium	7429-90-5	0.01	mg/L	<0.01	
Arsenic	7440-38-2	0.001	mg/L	<0.001	
Beryllium	7440-41-7	0.001	mg/L	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	
Cobalt	7440-48-4	0.001	mg/L	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	
Manganese	7439-96-5	0.001	mg/L	0.006	
Molybdenum	7439-98-7	0.001	mg/L	0.006	
Nickel	7440-02-0	0.001	mg/L	0.003	
Selenium	7782-49-2	0.01	mg/L	<0.01	
Silver	7440-22-4	0.001	mg/L	<0.001	
Vanadium	7440-62-2	0.01	mg/L	<0.01	
Zinc	7440-66-6	0.005	mg/L	<0.005	
EG020T: Total Metals by ICP-MS					
Aluminium	7429-90-5	0.01	mg/L	0.02	
Antimony	7440-36-0	0.001	mg/L	<0.001	
Arsenic	7440-38-2	0.001	mg/L	<0.001	
Beryllium	7440-41-7	0.001	mg/L	<0.001	
EG020T: Total Metals by ICP-MS - Continued					
Barium	7440-39-3	0.001	mg/L	0.208	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	
Cobalt	7440-48-4	0.001	mg/L	<0.001	
Copper	7440-50-8	0.001	mg/L	0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	
Lithium	7439-93-2	0.001	mg/L	0.584	
Molybdenum	7439-98-7	0.001	mg/L	0.008	
Nickel	7440-02-0	0.001	mg/L	0.003	
Selenium	7782-49-2	0.01	mg/L	<0.01	
Silver	7440-22-4	0.001	mg/L	<0.001	
Tin	7440-31-5	0.001	mg/L	<0.001	
Titanium	7440-32-6	0.01	mg/L	<0.01	
Vanadium	7440-62-2	0.01	mg/L	<0.01	
Zinc	7440-66-6	0.005	mg/L	<0.005	
Boron	7440-42-8	0.05	mg/L	0.34	
Iron	7439-89-6	0.05	mg/L	<0.05	
EG035F: Dissolved Mercury by FIMS					
Mercury	7439-97-6	0.0001	mg/L	<0.0001	
EG035T: Total Recoverable Mercury by FIMS					
Mercury	7439-97-6	0.0001	mg/L	<0.0001	
EK055G: Ammonia as N by Discrete Analyser					
Ammonia as N	7664-41-7	0.01	mg/L	0.01	
EK067G: Total Phosphorus as P by Discrete Analyser					
Total Phosphorus as P	---	0.01	mg/L	0.04	

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Water – Volume

Monthly water volumes discharged via MC's LDP1 during September 2024 at Manning Colliery are summarised below.

EPL	191
Licensee	Great Southern Energy Pty Ltd
Premises	Manning Colliery
Date Sampled	Daily
Discharge volume limit	4000 kilolitres per day
Sampling Point	LDP001 (EPA ID # 1)

Date (24 hour period)	LDP 1 Volume (kL/day)	Rainfall (mm)
01/09/2024	751.84	4000
02/09/2024	1247.4	4000
03/09/2024	1297.42	4000
04/09/2024	1341.97	4000
05/09/2024	1101.33	4000
06/09/2024	550.09	4000
07/09/2024	202.49	4000
08/09/2024	1106.82	4000
09/09/2024	1127.64	4000
10/09/2024	1129.91	4000
11/09/2024	788.15	4000
12/09/2024	704.08	4000
13/09/2024	1679.48	4000
14/09/2024	996.36	4000
15/09/2024	716.43	4000
16/09/2024	1225.2	4000
17/09/2024	1046.87	4000
18/09/2024	1135.46	4000
19/09/2024	916.12	4000
20/09/2024	1122.98	4000
21/09/2024	1214.49	4000
22/09/2024	497.24	4000
23/09/2024	0	4000
24/09/2024	6.57	4000
25/09/2024	423.79	4000
26/09/2024	371.71	4000
27/09/2024	801.41	4000
28/09/2024	1093.45	4000
29/09/2024	1206.69	4000
30/09/2024	1275.9	4000

Average	902.64 kL/day	2.85 mm/day
Maximum	1679.48 kL/day	37.20 mm/day

Volumetric discharge remained below the daily limit of 4,000 kL per day.

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Water – Groundwater Discharge

Groundwater discharged from underground workings to the MCs surface retention Dams has been detailed below. Manning Colliery operates Water Access License 40461 permitting the extraction of 450 megalitres per financial year and reports annual use to the Water NSW, Water Accounting System (iWAS).

MC Groundwater Pumped to Surface Totals FY2024-2025		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2024	14	14
August 2024	25	39
September 2024	20	59

Air Quality – Depositional Dust

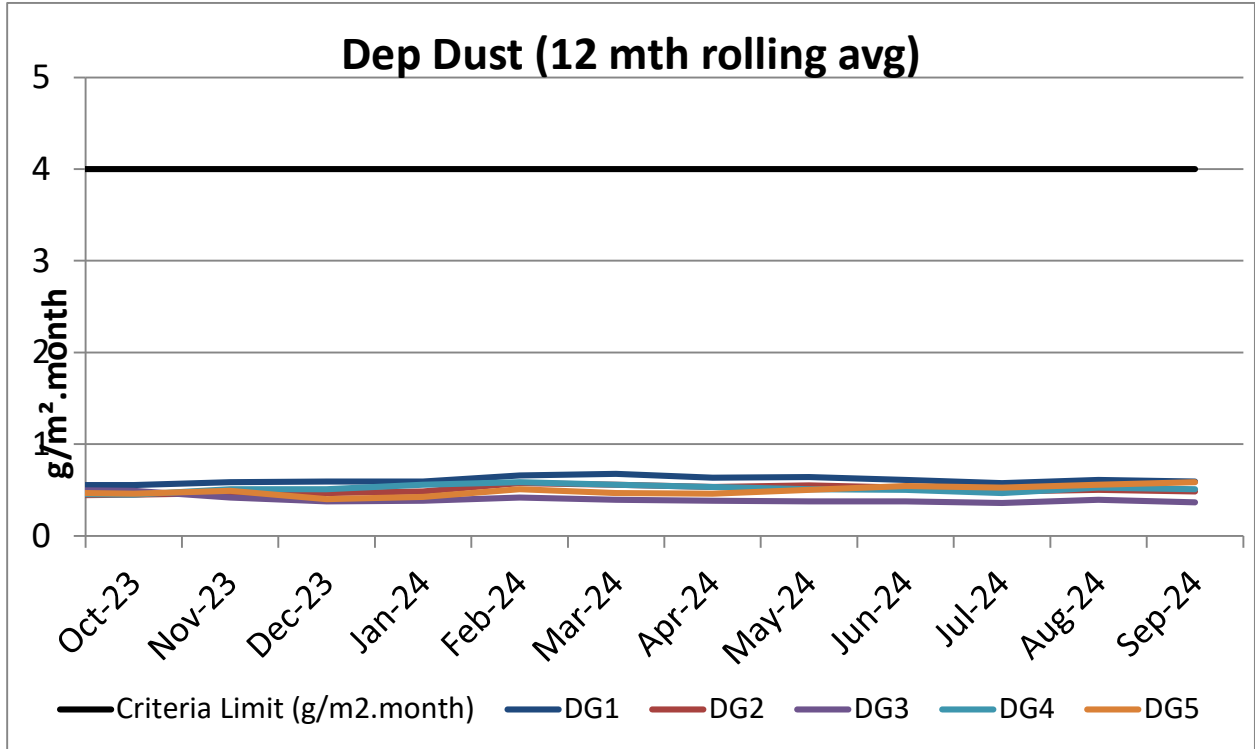
Monthly depositional dust results are shown below.

September 2024		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	02/08/2024 - 02/09/2024	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.5
4	DG2	0.2
5	DG3	0.2
6	DG4	0.4
7	DG5	0.6
Notes:	Sampling locations provided in Delta Coal Air Quality and Greenhouse Gas Management Plan available on the Delta Coal website.	

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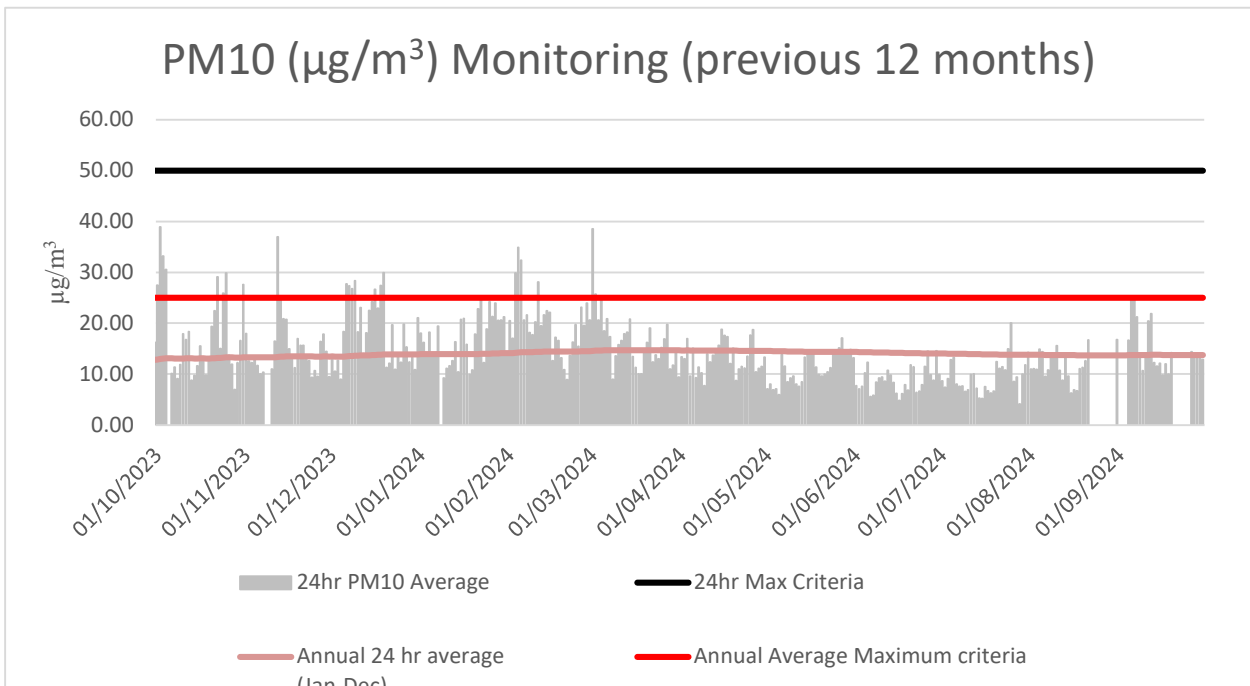
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery's dust gauges are located around the perimeter of the Manning Colliery site boundary.



Air Quality – PM₁₀

The 24hr PM₁₀ average from Delta Coal's Tapered Element Oscillating Microbalance (TEOM), located at the Manning Park Sewage Treatment Plant, is presented below for the previous 12 months.



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Annual 24hr PM₁₀ average maximum criteria for September 2024 was below the annual average maximum criteria limit. A summary of data availability for Delta Coal’s TEOM is presented below for the reporting period. Delta Coals TEOM had a data availability of 94.4% for the month of September 2024.

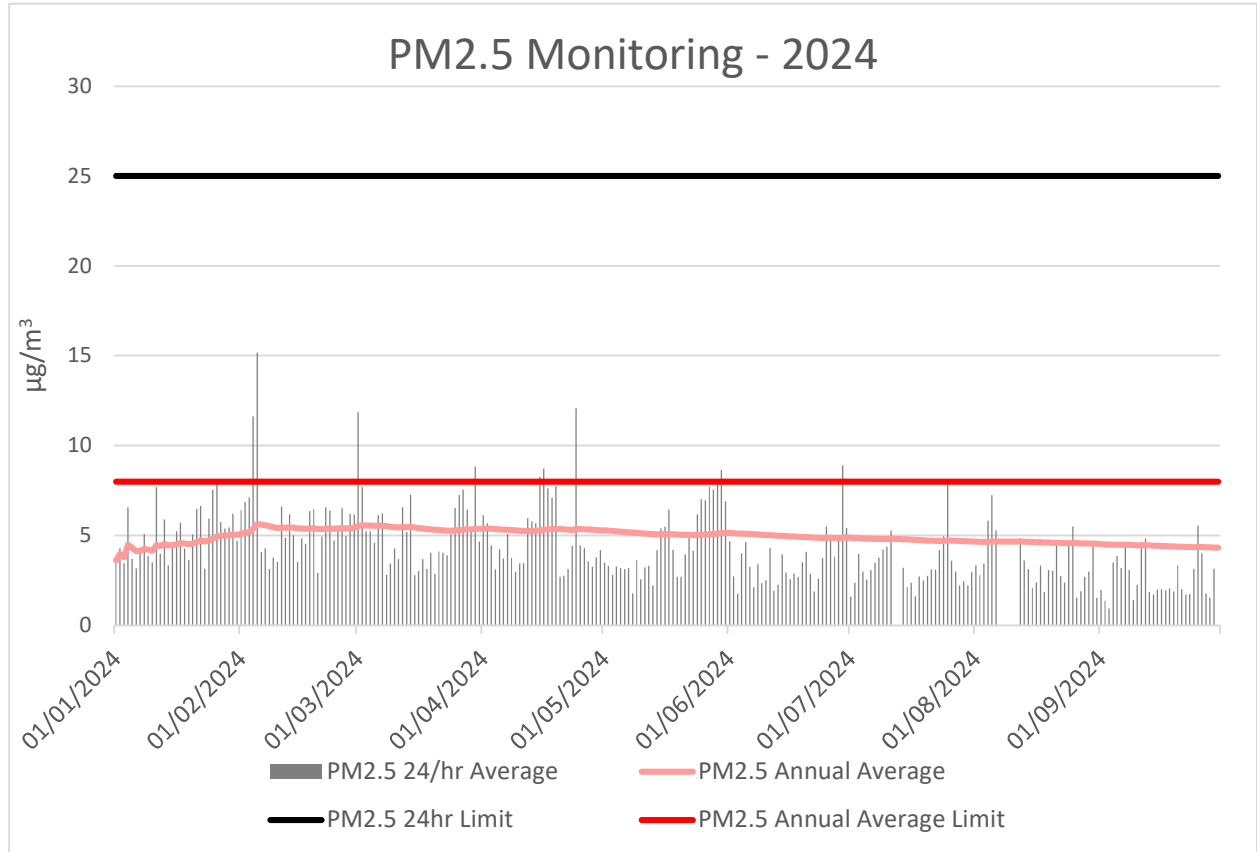
Variable	September	Total	Valid
A/C Temp	93.6%	8640	8086
A1_Scaled	93.6%	8640	8086
Band	93.6%	8640	8086
Bypass Flow	76.4%	8640	6603
Cap Temp	76.4%	8640	6603
Case Temp	76.4%	8640	6603
Config	93.6%	8640	8086
Dew Point	76.4%	8640	6603
Dig-In	93.6%	8640	8086
Dig-Latch	93.6%	8640	8086
ESN	93.6%	8640	8086
Filter Freq	76.4%	8640	6603
Filter Load	76.4%	8640	6603
Humidity	76.4%	8640	6603
MC	76.5%	8640	6606
MC 12Hr	76.5%	8640	6606
MC 1Hr	76.5%	8640	6606
MC 24Hr	76.5%	8640	6606
MC 30min	76.5%	8640	6606
MC 8Hr	76.5%	8640	6606
MC Total	76.4%	8640	6603
Mobile Signal	93.6%	8640	8086
Noise	76.4%	8640	6603
PM10 Flow	76.4%	8640	6603
Pressure	76.4%	8640	6603
Site	0.0%	8640	0
Temperature	76.4%	8640	6603
Tube Temp	76.4%	8640	6603
Vac Pressure	76.4%	8640	6603
Volts	93.6%	8640	8086

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Air Quality – PM2.5

Delta Coal utilises PM_{2.5} data obtained from Delta Electricity owned and operated beta attenuation monitor (BAM). The PM_{2.5} monitor is located on Tingley Road, Wyee.



There were no exceedances of the PM_{2.5} daily average limit in September 2024. The 12-month rolling average PM_{2.5} value on 30 September was 4.32 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in September was 96%. The 2024 year to date PM_{2.5} data availability is 95.47%.

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Weather Data

A summary of weather data recorded by a meteorological monitoring station at the adjacent Manning Colliery is presented below for the year to date. (EPA ID no. 26).

Monthly Weather Data 2024			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	10 September 2024		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-24	53.6	13.8	40.9
Feb-24	163	16.4	39
Mar-24	18.6	13.3	33.8
Apr-24	362	13.2	17.9
May-24	263	12.1	16.6
Jun-24	163	3.2	22.1
July-24	88	1.8	22
Aug-24	56.4	4	29.2
Sep-24	85.8	4.4	28.8

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Variable	September	Total	Valid
Baro (Corrected)	99.7%	2880	2871
10m Temp	99.7%	2880	2871
2m Temp	99.7%	2880	2871
A1	99.7%	2880	2871
A1_Scaled	99.7%	2880	2871
Assumed Temp	99.7%	2880	2871
Barometric	99.7%	2880	2871
Config	99.7%	2880	2871
Daily Evap	99.7%	2880	2871
Daily Rain	99.7%	2880	2871
Delta T	99.7%	2880	2871
Dew Point	99.7%	2880	2871
Dig-In	99.7%	2880	2871
Dig-Latch	99.7%	2880	2871
ESN	99.7%	2880	2871
FDI	99.7%	2880	2871
Heat Index	99.7%	2880	2871
Humidity	99.7%	2880	2871
Mobile Signal	99.7%	2880	2871
Rain	99.7%	2880	2871
Raw Evap	99.7%	2880	2871
S Class	99.7%	2880	2871
Scalar WS	99.7%	2880	2871
Sigma	99.7%	2880	2871
Site	0.0%	2880	0
Solar Radiation	99.7%	2880	2871
Vector WD	99.7%	2880	2871
Vector WS	99.7%	2880	2871
Volts	99.7%	2880	2871
Wind Chill	99.7%	2880	2871
Wind Direction	99.7%	2880	2871
Wind Speed	99.7%	2880	2871
WS Avg	99.7%	2880	2871
WS Gust	99.7%	2880	2871